

Appl. No. 10/603,685
Amendment filed March 15, 2005
Reply to Office Action of September 17, 2004

KAS-179

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A thermal type flow measuring instrument comprising a sensing element for sensing an air flow, an electronic circuit electrically connected to said sensing element, and a frame- or box-shaped plastic casing component for accommodating and protecting said electronic circuit, said plastic casing component being a housing ~~given~~ constructed from plastic as an injection molded part formed by integral molding together with a connector terminal which is extended from an inside to an outside of said plastic casing component while penetrating therethrough for electrical connection of said electronic circuit to an external device, ~~wherein said housing has~~ further including a fixing portion molded from plastic with a metal plate inserted therein for attachment to a duct component serving as a passage through which a fluid to be measured flows, said metal plate being entirely or partially covered with ~~a~~ the plastic, and said metal plate having an opening ~~or a slot allowing only~~

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~~the plastic to pass through the same is formed~~ formed adjacent
a corner of said metal plate in a plastic-covered portion of
said metal plate thereof at a part of the corner portion where
a temperature stress is larger than a temperature stress at
other portions of said metal plate, said opening being filled
with said plastic to thereby join the plastic on one surface
of said metal plate with the plastic on an opposite surface of
said metal plate;

2. (Currently Amended) A thermal type flow measuring instrument according to Claim 1, wherein said fixing portion ~~given as~~ has a flange formed by integral molding with said metal ~~plate plate,~~ ~~inserted in the connector terminal~~ ~~penetrating portion of said housing,~~ and said metal plate has ~~an opening hole~~ through which said connector terminal penetrates and which is filled with the plastic, ~~and has a hole filled with only the plastic.~~

3. (Currently Amended) A thermal type flow measuring instrument according to Claim 1, wherein said ~~metal plate has~~ an opening serving serves as a flow passage to introduce molten plastic from one surface to an opposite surface of said

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metal plate, ~~or an~~ said opening or a slot interfering serves
to interfere with a flow of the molten plastic so that speeds
of the molten plastics flowing along both the surfaces of said
metal plate differ from each other during injection molding of
said housing.

4. (Currently Amended) A thermal type flow measuring
instrument according to Claim 1, wherein ~~said metal plate has~~
~~an opening or a slot acting~~ acts to form a weld line of the
plastics molded to form said housing in a position inside an
outer periphery of said metal plate.

5. (Currently Amended) A thermal type flow measuring
instrument according to Claim 1, further comprising a sensing
element for sensing an ~~air-flow,~~ flow and an electronic
circuit electrically connected to said sensing element, and ~~a~~
~~frame or box shaped plastic casing component for~~
~~accommodating and protecting said electronic circuit, said~~
~~plastic casing component being a housing given as an injection~~
~~molded part formed by integral molding together with a~~
~~connector terminal which is extended from an inside to an~~
~~outside of said plastic casing component while penetrating~~

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~~therethrough for electrical connection of said electronic
circuit to an external device,~~

wherein said connector terminal has a sub connector
terminal branched from said connector terminal, and said sub
connector terminal is extended in a portion in which a plastic
molded to form said housing has a relatively large thickness.

6. (Currently Amended) A thermal type flow measuring
instrument according to Claim 5, wherein ~~said connector
terminal is extended from the inside to the outside of said
plastic casing component while penetrating therethrough, and~~
said sub connector terminal branched from said connector
terminal has a fore end remaining in a said plastic molded to
form said plastic casing component and is not exposed to the
exterior.

7. (Previously Presented) A thermal type flow measuring
instrument according to Claim 5, wherein said sub connector
terminal is formed at an inclination so that flow directions
of molten plastics during injection molding of said housing
differ from each other between an upstream side and a
downstream side of said sub connector terminal.

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8. Cancelled

9. (Currently Amended) A thermal type flow measuring instrument according to Claim 1, further comprising a sensing element for sensing an air-flow, flow and an electronic circuit electrically connected to said sensing element, and ~~a frame or box shaped plastic casing component for accommodating and protecting said electronic circuit, said plastic casing component being a housing given as an injection molded part formed by integral molding together with a connector terminal which is extended from an inside to an outside of said plastic casing component while penetrating therethrough for electrical connection of said electronic circuit to an external device,~~

wherein said housing includes a vent pipe extended along said connector terminal from an inside to an outside of said housing while penetrating therethrough, and a gate for injection molding of said housing is formed near an end of said vent pipe to flow a molten plastic in a direction parallel to a longitudinal direction of said vent pipe.

10. Cancelled

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11. (Currently Amended) A thermal type flow measuring instrument according to Claim ~~10~~ 9, wherein a direction in which the plastic is injected from said gate is substantially perpendicular to said metal plate, and an extent of the injection is within a projected area of an opening formed in said metal plate, through which said connector terminal penetrates.

12. Cancelled

13. (Previously Presented) An engine-control system comprising a thermal type flow measuring instrument according to Claim 1, fuel delivery means, and a controller for controlling said fuel delivery means in accordance with a signal from said thermal type flow measuring instrument.